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Primary Health Care Research & Development

Knowledge, attitudes and beliefs towards e-cigarettes among e-cigarette users and stop smoking advisors in South East England: a qualitative study.

--Manuscript Draft--

Manuscript Number:	PHC-D-16-00110R3
Full Title:	Knowledge, attitudes and beliefs towards e-cigarettes among e-cigarette users and stop smoking advisors in South East England: a qualitative study.
Short Title:	E-cigarette use: a qualitative study.
Article Type:	Short Report
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Abstract:	<p>Aim: To explore how e-cigarettes are perceived by the e-cigarette users and Stop Smoking Advisors(SSA), what are the risks and benefits they associate with e-cigarettes and how do these understandings shape participants' attitude towards e-cigarettes? Method: Face-to-face and phone interviews were conducted with 15 e-cigarette users and 13 SSA in South East England. Transcribed data was analysed inductively through thematic analysis. Findings: e-cigarettes were used as a therapeutic aid to stop or cut down smoking and as a smoking substitute. A prominent theme is the uncertainty e-cigarettes have generated. This included ambiguity of e-cigarettes' status and efficacy, and ambiguity of e-cigarettes' physical and social risks. Different attitudes towards e-cigarettes were identified. Conclusion: E-cigarettes' benefits and risks should be continuously evaluated, put into perspective and circulated to avoid ambiguity. Stop smoking services need to recognise the benefits that can be gained by using e-cigarettes as a harm reduction tool.</p>
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Title:

Knowledge, attitudes and beliefs towards e-cigarettes among e-cigarettes users and stop smoking advisors in South East England: a qualitative study.

Running title

Qualitative Research on e-cigarettes use

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Knowledge, attitudes and beliefs towards e-cigarettes among e-cigarette users and stop smoking advisors in South East England: a qualitative study.

Key words qualitative research; smoking; e- cigarettes.

Background: In Britain, it was estimated that in 2016, 2.8 million adults used e-cigarettes; mainly current and ex-smokers (ASH, 2016a). The top reasons for using e-cigarettes are to help stop smoking and reduce harm (McNeill *et al.*, 2015) as they have been used successfully to quit smoking and reduce cigarette consumption (McRobbie *et al.*, 2014). Although existing research does not provide a definitive conclusion about their safety in absolute terms, there is an indication that they are less harmful than tobacco cigarettes and comparable in toxicity to approved Nicotine Replacement Therapies (NRTs) (NCSCT, 2016). However, their position within tobacco control is still controversial (RCP, 2016). Many consider e-cigarettes a breakthrough in public health and harm reduction history (Hajek *et al.*, 2014; McNeill *et al.*, 2015). Others warn that their safety, quality and long term use have not been established fully and therefore oppose their promotion (Chapman, 2014).

Stop Smoking Services (SSS) in England train stop smoking advisors (SSAs) to support smokers who want to quit through providing accessible, evidence-based and cost-effective services (DOH, 2011). Their current practice includes offering treatments such as NRTs aiming at stopping smoking with the view of ending nicotine use (NICE, 2008). Some evidence indicates that NRTs are an effective intervention (Kamerow, 2012), other questions their effectiveness (Alpert *et al.*, 2012).

Tobacco harm reduction approach implies that 'it is safer to use licensed nicotine-containing products than to smoke' and that their 'lifetime use [...] will be considerably less harmful than smoking' (NICE, 2013: 10). However, many smokers find NRTs unsatisfactory as long-term substitutes for smoking (RCP, 2016: 7). In contrast, e-cigarettes have the potential to permanently replace cigarettes (Bell and Keane, 2012) because they imitate features of smoking and this is making them a popular and effective substitute to smoking (RCP, 2016: 70). However, some mainstream tobacco control opinions consider e-cigarettes a threat to their efforts to denormalise smoking through eliminating the visibility of the smoking behaviour (Bell and Keane, 2012; De *et al.*, 2013). Concerns were raised that e-cigarettes might glamorise smoking; provide an entryway for people to become addicted or deter smokers from using existing cessation aids (De and Hastings, 2013).

This study was part of a self-funded Doctoral degree in Social Sciences. Ethical approvals were gained from the Social Care NREC, Public Health Directorate in two counties in South East (SE) England and the University Ethical Committee. At the time, SSS were not prescribing or recommending e-cigarettes but were seeing an increase in service users asking about and using e-cigarettes. SSAs were advised to tell people that these products are not regulated and ‘therefore, their effectiveness, safety and quality cannot be assured’, but to advise ‘that these products are likely to be less harmful than cigarettes’ (NICE, 2013: 15).

Other studies highlighted the concerns and perceptions that health practitioners hold for e-cigarettes at UK SSS (Hiscock *et al.*, 2014; Beard *et al.*, 2014). This study explores the knowledge, attitudes and beliefs towards e-cigarettes (without particular focus on smoking cessation) among a group of e-cigarette users and a group of SSAs in SE England. It aims to answer three questions: 1) how are e-cigarettes perceived by the e-cigarette users and SSAs? 2) what are the risks and benefits associated with e-cigarettes, as perceived by both groups? 3) how do these understandings shape participants’ attitude towards e-cigarettes?

Method: The study was conducted between 2014 and 2015 and used a convenience sampling. SSAs were invited to participate in the research and invite their clients who use e-cigarettes to participate. Leaflets and posters were distributed at some local shops and e-cigarette stores and an advert was put on some social media platforms and on the University website; inviting e-cigarette users to participate. Face to face and phone semi-structured interviews were used. Based on the literature review, a draft interview topic guide was designed to explore reasons of and attitudes towards e-cigarette use; perceptions of their status, efficacy, risk and/or benefit. Phone interviews were offered to participants if found more convenient to them than face to face interview. The sample consisted of 13 SSAs from two SSSs in two Counties in SE England (7 from one county and 6 from the other; 9 females and 4 males) and 15 current e-cigarette users (median age 44y (range 21–67); 60% (n 9) males; 33% (n 5) were SSS users; duration of e-cigarette use ranged between 4-36 months (average 14.6 months); 53% (n 8) were ex-smokers (the rest still smoked either occasionally or regularly). Appendix 1 shows relevant demographic characteristics of e-cigarette users. An inductive approach of thematic analysis was used using QSR NVivo10 and applying the six phases framework proposed by Braun and Clarke (2006). Appendix 2 shows the process of coding.

Findings: Two main themes emerged from the analysis:

Theme 1: The Reasons for Using E-Cigarettes

E-cigarettes were used as a therapeutic aid to stop or cut down smoking and as a smoking substitute. Their efficacy was attributed to: replicating the habitual and rituals of smoking; offering comfort and pleasure; delivering nicotine effectively; relieving withdrawal symptoms; and helping in avoiding relapse to smoking. Both groups mentioned e-cigarettes' innovative modernistic features; flavours; reduced cost compared to cigarettes; tobacco-free smell; **social acceptability** and the possibility of customizing them according to individual's needs and desires. Some users used e-cigarettes as a hobby and a social activity. Nearly all e-cigarette users opted to use e-cigarettes to improve their health. Two users mentioned they used them to save money without referring to health concerns. Some users reported being encouraged to use e-cigarettes instead of smoking by friends, family or health personnel.

Theme 2: The Ambiguity of E-Cigarettes

Both groups were heterogeneous in their attitudes, values and beliefs. The diverse perceptions that e-cigarettes have generated and the uncertainty associated with them were evident and can be classified into three sub themes:

i) The ambiguity of e-cigarettes' status and efficacy. E-cigarettes were perceived and used as therapeutic products; recreational products; a smoking substitute and an addition for NRTs.

"I would rather view it as a medicine; as an aid to giving up smoking." (H1, advisor)

"For me it's a treatment. It's a way to keep off tobacco." (14N, user)

"It is not a medicine and is certainly not a treatment." (2B, user)

Nearly all users and most of the advisors perceived e-cigarettes to be as effective as or more effective than NRTs. Their effectiveness in helping particular types of smokers to quit or reduce smoking was highlighted.

"I don't know, I am not certain. I think for people who are very addicted to the nicotine and very addicted to the habits surrounding the smoking, it could be the e-cigarette is the thing that help them to stop or at least the thing to taking nicotine at a relatively safe level without all the chemicals from tobacco and all the harm from Carbon monoxide." (H5, advisor)

ii) The ambiguity of e-cigarettes' physical risks. E-cigarettes were perceived as safe products; safer alternative to smoking; an innovation with potential long-term threats; "dangerous" and risky objects.

"I wish I could tell them with absolute surety what the safety is and I can't. I wish I can tell them with absolute surety how much nicotine they are getting from the product and I can't." (H6, advisor)

"My sense is that there's a lot of risk aversion around it because nobody can say it's safe, therefore it must be dangerous." (11K, user)

Some users described the health benefits of using e-cigarettes, like improving their lung function. All participants believed e-cigarettes to be less harmful than smoking. However, the advisors expressed more concerns than users, especially of the long term effect.

iii) The ambiguity of e-cigarettes' social risks. E-cigarettes were perceived as devices that might create addiction; maintain nicotine addiction; a gateway to smoking; a gateway from smoking; a smoking renormalisation threat; an approved habit with a possibility of developing stigma.

"The danger [it] may open up a door for an addiction they did not have to begin with...it's a double-edge sword." (H1, advisor)

"I think the stigma that smokers had has kind of carried on to the e-cigarette users in the sense that the stigma surrounding the addiction itself. People see you as weak because you give in to the addiction because you obviously don't have willpower enough to stop, so it's kind of the moral judgement..." (12L, user).

In the face of e-cigarettes' ambiguity and potential risks, nearly all the advisors favoured a medicinal regulation for e-cigarettes to ensure safety and to add them to their prescription list, aiming at eliminating nicotine use. They disapproved e-cigarettes' resemblance to conventional cigarettes and favoured their ban in public places to avoid any potential risk. Conversely, nearly all e-cigarette users disapproved e-cigarettes' ban in public places. The users placed e-cigarettes in a smoking quitting continuum where boundaries are blurry and where they can tailor their use according to their lifestyle, needs and desires.

Discussion and Conclusion

Similar to other qualitative studies, this study is subject to criticisms (Diefenbach, 2009; Bryman, 2012). The lack of generalisability of findings could be construed as a weakness. However, this was purposely a small qualitative study and was not designed to fulfil the generalisability requirement, rather it focused on garnering individual accounts of e-cigarette perceptions. A potential limitation is using two different interview methods; however, there was a high degree of thematic commonality provided via both approaches. To address validity, interviews were recorded and transcribed. Participants' direct quotes were used and themes were continuously revised and verified with two PhD supervisors.

The findings on the reasons of e-cigarette use conform to results from other studies (Dockrell *et al.*, 2013; Dawkins *et al.*, 2013; ASH, 2016b). Although other studies found that some e-cigarette users reported stopping using e-cigarettes based on advice they had received from a health professional (ASH, 2016b), in this study, some users reported health personnel's approval to use e-cigarettes instead of smoking. Similar to other studies, e-cigarettes' relative safety compared to traditional cigarettes was emphasised (Pepper and Brewer, 2013; Dawkins *et al.*, 2013; Pepper *et al.*, 2015; Baweja *et al.*, 2016). Although participants in one study viewed e-cigarettes differently to NRTs (Rooke *et al.*, 2015), e-cigarettes, in this study, were perceived to be as effective as or more than NRTs.

The findings have provided new insights into SSAs' attitudes towards e-cigarettes. SSAs envisaged e-cigarettes' potential benefits to some cohorts. However, their aim at stopping nicotine use does not reflect harm reduction approaches in nicotine addiction which aim at minimising the effect of consuming nicotine rather than eliminating its use, as recommended by leading health organisations (NICE, 2013).

Both groups demonstrated uncertainty with regards to the status, efficacy and risks associated with e-cigarettes. Some of these concerns lack empirical evidence such as the gateway and smoking renormalisation concerns (NCSCT, 2016). Similar uncertainty, concerns and disagreement were found in other studies (Pepper and Brewer, 2013; Hiscock *et al.*, 2014; Beard *et al.*, 2014; Sherratt *et al.*, 2015a, b; Rooke *et al.*, 2015). These expressed demonstrations of uncertainty may possibly reflect the circulated controversy in the media. Ambiguity and fear played a major part in stigmatising other

biotechnological innovations, health conditions and behaviours (Gregory *et al.*, 1996; Stuber *et al.*, 2008). Stigma has multiple forms and severities including negative stereotyping and experiences of discrimination (Stuber *et al.*, 2009). If ambiguity of e-cigarettes persisted, some forms of stigma might develop.

To avoid stigma and amplification of risk, public health messages should address the uncertainty and different perceptions of e-cigarettes and highlight the difference between stop the use of nicotine and stop smoking. E-cigarettes' benefits and risks should be continuously evaluated, put into perspective in comparison with harms inflicted by tobacco use, and circulated among media channels and health services to minimise ambiguity and non-evidence based concerns. Stop smoking services need to recognise the potential benefits gained by using e-cigarettes as a harm reduction tool and focus on stopping smoking rather than stopping nicotine. Indeed, the latest guidelines by The National Centre for Smoking Cessation and Training have incorporated similar recommendations to stop smoking advisors (NCSCT, 2016). Further research could reveal the changes of attitudes towards e-cigarettes among stop smoking advisors following these new recommendations.

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Findings: Two main themes emerged from the analysis:

Theme 1: The Reasons for Using E-Cigarettes

E-cigarettes were used as a therapeutic aid to stop or cut down smoking and as a smoking substitute. Their efficacy was attributed to: replicating the habitual and rituals of smoking; offering comfort and pleasure; delivering nicotine effectively; relieving withdrawal symptoms; and helping in avoiding relapse to smoking. Both groups mentioned e-cigarettes' innovative modernistic features; flavours; reduced cost compared to cigarettes; tobacco-free smell; social acceptability and the possibility of customizing them according to individual's needs and desires. Some users used e-cigarettes as a hobby and a social activity. Nearly all e-cigarette users opted to use e-cigarettes to improve their health. Two users mentioned they used them to save money without referring to health concerns. Some users reported being encouraged to use e-cigarettes instead of smoking by friends, family or health personnel.

Theme 2: The Ambiguity of E-Cigarettes

Both groups were heterogeneous in their attitudes, values and beliefs. The diverse perceptions that e-cigarettes have generated and the uncertainty associated with them were evident and can be classified into three sub themes:

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"The danger [it] may open up a door for an addiction they did not have to begin with...it's a double-edge sword." (H1, advisor)

"I think the stigma that smokers had has kind of carried on to the e-cigarette users in the sense that the stigma surrounding the addiction itself. People see you as weak because you give in to the addiction because you obviously don't have willpower enough to stop, so it's kind of the moral judgement..." (12L, user).

In the face of e-cigarettes' ambiguity and potential risks, nearly all the advisors favoured a medicinal regulation for e-cigarettes to ensure safety and to add them to their prescription list, aiming at eliminating nicotine use. They disapproved e-cigarettes' resemblance to conventional cigarettes and favoured their ban in public places to avoid any potential risk. Conversely, nearly all e-cigarette users disapproved e-cigarettes' ban in public places. The users placed e-cigarettes in a smoking quitting continuum where boundaries are blurry and where they can tailor their use according to their lifestyle, needs and desires.

Discussion and Conclusion

Similar to other qualitative studies, this study is subject to criticisms (Diefenbach, 2009; Bryman, 2012). The lack of generalisability of findings could be construed as a weakness. However, this was purposely a small qualitative study and was not designed to fulfil the generalisability requirement, rather it focused on garnering individual accounts of e-cigarette perceptions. A potential limitation is using two different interview methods; however, there was a high degree of thematic commonality provided via both approaches. To address validity, interviews were recorded and transcribed. Participants' direct quotes were used and themes were continuously revised and verified with two PhD supervisors.

The findings on the reasons of e-cigarette use conform to results from other studies (Dockrell *et al.*, 2013; Dawkins *et al.*, 2013; ASH, 2016b). Although other studies found that some e-cigarette users reported stopping using e-cigarettes based on advice they had received from a health professional (ASH, 2016b), in this study, some users reported health personnel's approval to use e-cigarettes instead of smoking. Similar to other studies, e-cigarettes' relative safety compared to traditional cigarettes was emphasised (Pepper and Brewer, 2013; Dawkins *et al.*, 2013; Pepper *et al.*, 2015; Baweja *et al.*, 2016). Although participants in one study viewed e-cigarettes differently to NRTs (Rooke *et al.*, 2015), e-cigarettes, in this study, were perceived to be as effective as or more than NRTs.

The findings have provided new insights into SSAs' attitudes towards e-cigarettes. SSAs envisaged e-cigarettes' potential benefits to some cohorts. However, their aim at stopping nicotine use does not reflect harm reduction approaches in nicotine addiction which aim at minimising the effect of consuming nicotine rather than eliminating its use, as recommended by leading health organisations (NICE, 2013).

Both groups demonstrated uncertainty with regards to the status, efficacy and risks associated with e-cigarettes. Some of these concerns lack empirical evidence such as the gateway and smoking renormalisation concerns (NCSCT, 2016). Similar uncertainty, concerns and disagreement were found in other studies (Pepper and Brewer, 2013; Hiscock *et al.*, 2014; Beard *et al.*, 2014; Sherratt *et al.*, 2015a, b; Rooke *et al.*, 2015). These expressed demonstrations of uncertainty may possibly reflect the circulated controversy in the media. Ambiguity and fear played a major part in stigmatising other

biotechnological innovations, health conditions and behaviours (Gregory *et al.*, 1996; Stuber *et al.*, 2008). Stigma has multiple forms and severities including negative stereotyping and experiences of discrimination (Stuber *et al.*, 2009). If ambiguity of e-cigarettes persisted, some forms of stigma might develop.

To avoid stigma and amplification of risk, public health messages should address the uncertainty and different perceptions of e-cigarettes and highlight the difference between stop the use of nicotine and stop smoking. E-cigarettes' benefits and risks should be continuously evaluated, put into perspective in comparison with harms inflicted by tobacco use, and circulated among media channels and health services to minimise ambiguity and non-evidence based concerns. Stop smoking services need to recognise the potential benefits gained by using e-cigarettes as a harm reduction tool and focus on stopping smoking rather than stopping nicotine. Indeed, the latest guidelines by The National Centre for Smoking Cessation and Training have incorporated similar recommendations to stop smoking advisors (NCSCT, 2016). Further research could reveal the changes of attitudes towards e-cigarettes among stop smoking advisors following these new recommendations.

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Table 1

Appendix 1: The demographic characteristics of e-cigarette users

E-cigarettes users ID	Gender	Age	Occupation	Stop Smoking Service user	Age started smoking (y)	Gave up smoking completely (at the time of the interview)	Commenced e-cigarettes use (calculated until the time of the interview)	Used other aids to stop smoking: NRT/Chap mix/ herbal cig/ Alan car/ hypnosis
1A	Female	44	Counsellor	NO	15	Yes	8 months	NO
2B	Male	39	Audit manager	NO/ex user	12	No	2 years	Yes
3C	Male	36	Unemployed/ disabled	NO/ex user	14	Yes	3 years	Yes
4D	Female	50	Unemployed/ disabled	Yes	20	No	6 months	Yes/ongoing
5E	Female	67	Retired	Yes	20s	Yes	Few months	Yes/ongoing
6F	Male	44	Unemployed	Yes	9	Yes	3-4 months	yes
7G	Female	31	Unemployed	Yes	19	No	15 months	Yes/ongoing
8H	Male	51	Surgeon	NO	22	No	4 months	Yes
9I	Male	21	IT worker	NO	16	Yes	2 years	Yes
10J	Female	37	Gym instructor	NO	21	Yes	2 years	Yes
11K	Male	34	Lecturer	NO	23	Yes	12-15months	Yes
12L	Male	38	Lecturer	NO	18	Yes	2 years	Yes
13M	Male	58	Retired	NO	15	No	9 months	NO
14N	Male	56	Artist/musician	Yes	16	No	2 years	Yes
15O	Female	60	para legal in family work	NO	15	No	7 months	Yes

Appendix 2: An illustration of the process of coding from the two datasets inductively

Final Themes	Main Themes	Initial themes & subthemes	Codes	Quotes Examples
E- cigarettes as Ambiguous Novelty	The Ambiguity of Electronic Cigarettes 'Status and Efficacy	Theme: Status & Efficacy Debate	E-cig as alternative to smoking	"I think at the moment it is seen as an alternative to smoking" (H6, advisor)
			Subthemes Recreational	Good substitute
		"it is certainly a very good substitute"(11K, user)		
		Medicinal		Effective like or more then NRT
			"...the e-cigarettes [are] better than anything they have on the NHS" (7G, user)	
			E-cig as medicine/treatment	"I think a lot of people self-medicate using the e-cigarettes" (S3, advisor)
		"I would rather view it as a medicine; as an aid to giving up smoking" (H1, SSA). "For me it's a treatment. It's a way to keep off tobacco" (14N, user)		

	The Ambiguity of Electronic Cigarettes 'Risk	Theme Risk debate	Uncertain about safety	"we don't know whether they [electronic cigarettes] are 100% safe at all" (9I, user)
		Subthemes		"I wish I could tell them with absolute surety what the safety is and I can't. I wish I can tell them with absolute surety how much nicotine they are getting from the product and I can't. So I think there are gaps there that I would like to fill" (H6, advisor)
		Health & Safety Risk	Uncertain long-term effect	"There's no long-term studies. That kind of worries" (12L, user)
				"...but what are the health risks for people inhaling propylene glycol over periods of time" (S2, advisor)
			e-cig is Safe	"I would say it should be allowed, it doesn't do any harm... the electronic cigarette does nothing actually" (4D, user)
			Less harmful than cigarettes	"Obviously this is less harmful to you and people around you" (10J, user)
				"I definitely say look if you have e-cigarette, I rather you keep it in your bag and if you are

				really stuck and you are socialising and you are drinking alcohol I rather you use that than the real cigarette, so in a way that's a harm reduction" (H4, advisor)
		Social Risk	Renormalisation	"About how it looks. I think generally there has been a huge amount of work to achieve the stop smoking ban in public places that is: any transport, any restaurant, any sort of public place, and I think to allow electronic cigarettes in those places will be a retrograde step" (H5, advisor)
			Develop addiction to e-cigarettes	"It started to happen not that often but I know three instances in the last few weeks when people are presented to us stated that they already quit cigarette but wanted to come off electronic cigarettes and that's brand new for us" (S2, advisor)
			Maintain addiction to nicotine	"I mean there are no health warnings on it, because no one has discovered any health dis-benefits apart from

				the fact that it will keep you addicted to nicotine. And I think most people who smoke electronic cigarettes, I think, know that nicotine is highly addictive” (14N, user)
			Stigma/ unacceptability	<p>“I think the stigma that smokers had has kind of carried on to the electronic cigarette users in the sense that the stigma surrounding the addiction itself” (12L, user)</p> <p>“Some people who are already strongly anti-smoking probably won’t be happy seeing them. But I think the majority will probably accept them” (S4, advisor)</p> <p>“My children don’t like the fact I use them at all but they are proud of me giving up smoking, my husband prefers it” (1A, user)</p>
			Not gateway risk Vs Gateway risk	“I don’t think there is any evidence at the moment that children are starting to use electronic cigarettes, that it is used as a gateway drug. But I don’t think we have got enough evidence; longitudinal

				evidence” (H6, advisor)
				<p>“I don’t know. But I don’t see why they can’t happen. If you build up a nicotine addiction through vaping, and one day you walk past an airport .and there’s no other way of getting your fix than buying a packet of cigarettes, because no one sells – I can well imagine people will try that” (12L, user)</p>